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Abstract

Common cement-based renders are not suitable for Autoclave Aerated Concrete (AAC), recently introduced to the Thai construction industry. To get the best results from a render coating, it is important that the mix is suited to both the background surface and the conditions to which the render will be exposed. This research studies the behaviors of renders experimentally designed (Vanchai Sata, 1995) for AAC under the outdoor environment.

The AAC walls coated with various mixed renders were exposed to natural outdoor environment. The temperature was observed to vary from 30 to 43^oC. Normal strains of the coated renders were measured periodically using the mechanical strain gauge. The finite element method (FEM) using the transform section was applied to compare the strain characteristics with the field measured ones. The variable parameter for the FEM application was temperature.

It was found that there were no cracks for all render mixes coated to the AAC walls set up in the experiment. The measured strains were all higher than the values predicted by FEM. This is due to the field environment has more variable factors than temperature using for the study. The results from the FEM also predict that all the mixes are suitable to apply to AAC wall with opening area. However the more appropriate modeling of finite elements for AAC-render wall needs to be modified and more environmental parameters should be taken into account.